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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/518,155

07/20/2005

Robert Vassen

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02/13/2008

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EXAMINER

AUSTIN, AARON

ART UNIT

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/518,155	<b>Applicant(s)</b> VASSEN ET AL.	
	<b>Examiner</b> AARON S. AUSTIN	<b>Art Unit</b> 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 26 November 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 4-7 is/are pending in the application.
- 4a) Of the above claim(s) 2 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 4-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>11/26/07</u> .  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Election/Restrictions***

Newly amended claim 2 is directed to Specie B as set forth in the Requirement for Restriction of 5/9/07. As Applicant has elected to prosecute Specie A first, as indicated in the Reply filed 6/1/07 as well as the telephonic interview of 7/23/07, claim 2 is withdrawn as being directed to a non-elected invention.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-2 and 4-7 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. In particular, claim 1, line 11 recites "r, x, and z  $\neq$  0" for which limitation there is insufficient support within the specification.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 7 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Further, claim 7 recites the limitation "(platinum-)" which is indefinite as the meaning of the term is unclear in the context of the claim. More particularly, as the term is within parenthesis, it is unclear as to whether the intermediate layer is a platinum aluminide layer or simply any aluminide layer. For purposes of examination, the claim is treated in its broadest sense as requiring only an aluminide.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 1 is rejected under 35 U.S.C. 103(a) as obvious over Hyuga et al. (US 4,752,594).

Hyuga et al. teach a dielectric ceramic layer comprising a perovskite of the general formula  $A(B'_{1/3}B''_{2/3})O_{3+z}$  (column 2, lines 24-31). Constituent A may be Ba and Sr, while constituents B' and B'' may be Mg, Zn, Ta, and Nb (column 2, lines 32-36).

Hyuga et al. do not specifically state the melting point, thermal expansion coefficient, or the sintering temperature. However, like materials are used in a like manner; namely the layer has the composition claimed and is used as a dielectric insulation layer. Thus the dielectric layer of Hyuga et al. is expected to have the same properties as those claimed.

Regarding the limitation “r, x, and z  $\neq$  0”, Hyuga et al. teach the atomic ratio may vary slightly from the cited formula (column 3, lines 17-21). Further, the molar values taught by Hyuga et al. are substantially close to that of the instant claims such that one of ordinary skill would have expected compositions that are in such close proportions to those in prior art to be prima facie obvious, and to have same properties. *Titanium Metals Corp.*, 227 USPQ 773 (CA FC 1985).

Claims 1 and 4-7 are rejected under 35 U.S.C. 103(a) as obvious over Hyuga et al. (US 4,752,594) in view of Bhalla (XP-002255214 – “The Perovskite Structure – a review of its role in ceramic science and technology”), and further in view of Beele (US 6,319,614) and Campbell et al. (US 2003/0103875).

Hyuga et al. teach a dielectric ceramic layer comprising a perovskite of the general formula  $A(B'_{1/3}B''_{2/3})O_{3+z}$  as described above.

As noted above, Hyuga et al. do not specifically teach the properties as claimed.

In addition to the arguments set forth above, Bhalla et al. teach  $Ba(Mg_{1/3}Ta_{2/3})O_3$ , a formula specifically taught by Hyuga et al. (column 1, lines 24; column 4, line 66), is a complex perovskite oxide having an ultrahigh melting point. More particularly, the crystal grows at a melt in the temperature range of 2900-3100 °C (Section 5.3.4). Thus the perovskite of Hyuga et al. is expected to have a melt temperature above 2500 °C as claimed.

Regarding claims 4-6 Hyuga et al. and Bhalla et al. teach ultrahigh melting points, but do not specifically teach use of the perovskite as a heat-insulating coating.

Beele et al. teach perovskites having a melting temperature above 2150 °C are suitable for use as a ceramic thermal barrier layer coating a surface (column 3, lines 33-41). Therefore, as Beele et al. clearly teach perovskites having a melting temperature above 2150 °C are suitable for use as a ceramic thermal barrier layer coating a surface, it would have been obvious to one of ordinary skill in the art at the time of the claimed invention to form the perovskite materials taught by Hyuga et al. and Bhalla et al. as a heat-insulating coating.

Regarding claims 5-7, Beele et al. teach formation of a perovskite material over an MCrAlY layer that serves as an adhesion promoter for attachment to the substrate and as an oxidation protection layer (column 3, lines 59 to column 4, line 13). Therefore, as Beele et al. clearly teach an MCrAlY layer provides the advantage of adhesion promotion and oxidation resistance, it would have been obvious to one of ordinary skill in the art at the time of the claimed invention to use an MCrAlY layer in attaching the ceramic of Hyuga et al. and Bhalla et al. to the substrate as taught by Beele et al.

Regarding claim 6, Beele et al. do not teach the value for the “M” constituent of the MCrAlY layer.

Campbell et al. teach MCrAlY coatings suitable as bond coats wherein M may be cobalt (paragraph [0017]). Therefore, as Campbell et al. clearly teach M may be cobalt in an adhesion layer of a high temperature component, it would have been obvious to one of ordinary skill in the art at the time of the claimed invention to use cobalt in the MCrAlY taught by Beele et al.

Regarding claim 7, Campbell et al. teach platinum aluminides are functional equivalents to MCrAlY bond coat materials (paragraph [0017]). Therefore, as Campbell et al. clearly teach platinum aluminides are functional equivalents to MCrAlY bond coat material, it would have been obvious to one of ordinary skill in the art at the time of the claimed invention to use a platinum aluminide layer in place of the MCrAlY layer taught by Beele et al.

### ***Response to Arguments***

Applicant's arguments, see the Remarks, filed 11/26/07, with respect to the objections to the drawings, objection to the specification for lack of an abstract, rejections under 35 USC 112, and rejections under 35 USC 101, have been fully considered and are persuasive. These rejections and objections have been withdrawn.

Applicant's arguments with respect to the Hyuga et al. reference have been considered but are moot in view of the new ground(s) of rejection. However, in that the arguments may still apply, they are addressed below.

In particular, Applicant argues the newly added limitation of "r, x, and z  $\neq$  0", excludes the composition of Hyuga et al. by permitting over and under stoichiometry. However, Hyuga et al. teach the atomic ratio may vary slightly from the cited formula (column 3, lines 17-21). Thus the molar values may overlap the claimed range. Further, the molar values taught by Hyuga et al. are substantially close to that of the instant claims such that one of ordinary skill would have expected compositions that are

in such close proportions to those in prior art to be prima facie obvious, and to have same properties. *Titanium Metals Corp.*, 227 USPQ 773 (CA FC 1985).

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to AARON S. AUSTIN whose telephone number is (571)272-8935. The examiner can normally be reached on Monday-Friday: 7:30 AM to 4:00 PM.



If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on (571) 272-1478. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/John J. Zimmerman/  
Primary Examiner, Art Unit 1794

ASA